DIVISION OF CONSUMER ADVOCACY
Department of Commerce and
Consumer Affairs
335 Merchant Street, Room 326
Honolulu, Hawaii 96813
Telephone: (808) 586-2800

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of HAWAIIAN ELECTRIC COMPANY, INC. For Approval of to Commit Funds in Excess of $500,000 for Item Y48500, East Oahu transmission Project.	DOCKET NO. 03-0417

DIVISION OF CONSUMER ADVOCACY'S INFORMATION REQUESTS

Pursuant to the Schedule of Proceedings approved in Order No. 20968, the Division of Consumer Advocacy hereby files its **INFORMATION REQUESTS** in the above docketed matter.

DATED: Honolulu, Hawaii, August 25, 2004.

Respectfully submitted,

By _____
JOHN E. COLE
Executive Director

DIVISION OF CONSUMER ADVOCACY

DOCKET NO. 03-0417

HAWAIIAN ELECTRIC COMPANY, INC.

INFORMATION REQUESTS

INSTRUCTIONS

In order to expedite and facilitate the Consumer Advocate's review and analysis in the above matter, the following is requested:

1. For each response, the Company should identify the person who is responsible for preparing the response as well as the witness who will be responsible for sponsoring the response should there be an evidentiary hearing;

2. Unless otherwise specifically requested, for applicable schedules or workpapers, the Company should provide hard copies of each schedule or workpaper together with one copy of each such schedule or workpaper on electronic media in a mutually agreeable format (e.g., Excel and Quattro Pro, to name two examples); and

3. When an information request makes reference to specific documentation used by the Company to support its response, it is not intended that the response be limited to just the specific document referenced in the request. The response should include any non-privileged memoranda, internal or external studies, assumptions, Company instructions, or any other relevant authoritative source which the Company used.

4. Should the Company claim that any information is not discoverable for any reason:

   a. State all claimed privileges and objections to disclosure;

b. State all facts and reasons supporting each claimed privilege and objection;

c. State under what conditions the Company is willing to permit disclosure to the Consumer Advocate (e.g., protective agreement, review at business offices, etc.); and

d. If the Company claims that a written document or electronic file is not discoverable, besides complying with subparagraphs 4(a-c), identify each document or electronic file, or portions thereof, that the Company claims are privileged or will not be disclosed, including the title or subject matter, the date, the author(s) and the addressee(s).

DOCKET NO. 03-0417

HAWAIIAN ELECTRIC COMPANY INC.

CONSUMER ADVOCATE'S SUBMISSION OF INFORMATION REQUESTS

CA-IR-1 **Ref: HECO T-1, Page 13.**

Mr. Joaquin states that "the 138 kV Underground Alternative is the best alternative to fully address all the transmission problems effectively in the long-term, but not in the near term due to the estimated time to implement (2010)."

a. Is HECO presently taking any action to pursue this option either now or in the future? Explain.

b. Please explain how installing the 46 kV upgrades in the instant docket meets or exceeds the transmission needs for the near term and why installation of a 138 kV underground transmission infrastructure is not viable in the near term? Explain and provide copies of all documentation supporting the response.

c. How long does HECO anticipate it will be before additional 138 kV improvements are required based on current load projections? Provide copies of all documentation supporting the response.

CA-IR-2 **Ref: HECO T-1, Page 13.**

Mr. Joaquin states, "The Kamoku 46 kV Underground Alternative - Expanded fully addresses the Koolau/Pukele Overload Situation (2005) and the Pukele Substation Reliability Concern in the long-term . . . This alternative has limitations in addressing the other concerns in the long-term and near-term."

a. If the Honolulu Power Plant were retired in the near future, would HECO still recommend the Kamoku 46 kV Underground Alternative – Expanded alternative in the instant docket? Explain.

b. What project or projects does HECO anticipate it will need to pursue if the Honolulu Power Plant is retired in the near future? Provide copies of all documentation to support the response.

CA-IR-3 **Ref: HECO Exhibit 101, Page 4.**

The row labeled "System Operation Perspective," column 3 labeled "Kamoku 46 kV Alternative" and column 4 labeled "Kamoku 46 kV Alternative Expanded" indicate that each of these two options "provides no 138 kV flexibility." Please explain this statement and provide copies of all documentation and/or analysis to support this conclusion.

CA-IR-4 **Ref: HECO T-2, Page 12 and 13.**

Mr. Wong indicates that the *1992 East Oahu 138 kV Requirement Study* recommended that "Plan C" be implemented, which included an all-underground 138 kV transmission line between the Archer and Pukele Substations via the Kewalo and Kamoku Substations. Further, the use of Waahila Ridge for a portion of the line to be constructed overhead was a noted variation of Plan C. Why didn't HECO pursue the originally recommended all underground solution just as actively as the variation utilizing Waahila Ridge? Explain.

CA-IR-5 **Ref: T-3, Page 7.**

Mr. Pollock provides an example indicating that loss of a transmission line serving a large amount of load is more important than the loss of small residential load.

a. Is reliability of the distribution system less important than the reliability of the transmission system? Explain.

b. Is the loss of residential or other types of load considered to be less important than commercial loads simply for financial reasons? Explain.

c. What is HECO's obligation to serve all types and sizes of load with equal reliability? Explain.

CA-IR-6 **Ref: T-3, Pages 9 to 14.**

Regarding the outages cited and the lessons learned from each, how many of the outages would Mr. Pollock consider "avoidable" had proper maintenance (i.e., tree trimming) and engineering (i.e., proper protective relay calculation and setting) been performed? Provide copies of all documentation and/or analysis to support the response.

CA-IR-7 **Ref: T-3, Page 22, Line 21 and 22.**

a. Please explain the statement, ". . . where important customer loads are involved."

b. Provide all criteria considered to determine whether a customer's load is "important" in the context of the statement.

CA-IR-8 **Ref: T-3, Page 21 Line 17 through Page 23, Line 17.**

In addition to the Pukele Substation, the Consumer Advocate notes that the Airport, Archer, Kewalo, Kamoku and Wahiawa substations all have less than three 138 kV feeds.

a. If double contingency outages occur at any of these substations, will loss of load occur? Explain and provide copies of all documentation and/or analysis to support the response.

b. What is the importance of these customer loads that could not be backed up during a double contingency outage?

c. For each double contingency above, what is the estimate of load that could not be served during these outages (i.e., loads that cannot be backed up from other substations during the double contingency)? Provide copies of all documentation and/or analysis to support the response.

CA-IR-9 **Ref: T-3, Page 23 and 24.**

Table I, Category B's definition of n-1 contingency situations is contradictory to Mr. Pollock's statement that the "contingencies defined in Category B of Table I include the situation where one line is already out of service when a second line is lost unexpectedly." Did Mr. Pollock mean to refer to a different table or do we misunderstand Mr. Pollock's point?

CA-IR-10 **Ref: T-3, Page 27 through 29.**

Did Mr. Pollock draw his conclusions regarding the application of planning criteria to HECO's transmission system from his own analyses (i.e., load flow studies), or from a review of previously prepared HECO studies and other studies? Provide copies of all documentation and/or analysis relied upon to support Mr. Pollock's conclusion.

CA-IR-11 **Ref: T-4, Page 4 and 16.**

Please provide copies of the load flow studies prepared by HECO for the EOTP including the *East Oahu 138 kV Requirements Study (July 1991 and August 1992)*, the *East Oahu Transmission Requirements Update Study (March 1998)*, the *1994 Kamoku-Pukele 46 kV Alternatives Study* (and any updates to this study), the *2003 East Oahu Alternatives Study Update (December 2003)*, the *East Oahu Transmission Project: Options to the Koolau/Pukele Transmission Line Overload Problem (December 2003)* and any other internal load flow studies which are pertinent for the instant docket. Load flows should be provided electronically in PTI RAW format (latest version that is licensed to HECO). In addition, hard copies of load flow one line diagrams should be provided for each case (or group of cases to which the one line diagram is applicable). If internal cases exist that include the 46 kV system as well as the 138 kV system, please provide such cases as well.

CA-IR-12 **Ref: T-4, Page 20.**

a. Do all three-transmission lines feeding the Koolau Substation have the same normal and emergency ratings?

b. Please provide the normal and emergency ratings of each of the three transmission lines feeding the Koolau Substation.

CA-IR-13 **Ref: T-4, Page 21 Line 11 to 18.**

Please provide a listing of all other substations that violate this same transmission planning criteria.

CA-IR-14 **Ref: T-4, Page 33.**

How long has the Pukele substation been the most heavily loaded HECO substation?

CA-IR-15 **Ref: T-4, Page 33.**

"If the two lines providing power to the Pukele substation were both out of service, 93% of the customers serviced from the Pukele Substation would incur an outage. Most of our customers . . . would be out of power until one of the two 138 kV transmission lines could be restored to service."

a. How long has the Pukele Substation been operated in the manner in which the loss of both 138 kV transmission lines will result in the outage of 93% of customers serviced by Pukele Substation?

b. Why have the other sub-transmission or distribution projects not been previously proposed or implemented (such as the 46 kV project proposed in the instant docket) to provide backup to Pukele Substation loads?

c. Besides loads fed from the Pukele substation, are there other load areas that do not have at least two 46 kV sources

from different substations? Provide copies of all documentation and/or analysis to support the response.

d. If other load areas do not have at least two 46 kV sources from separate substations, please characterize these loads (i.e., provide geographical description of the loads, approximate MW of loads, and importance of loads to HECO in terms of residential versus commercial).

CA-IR-16 **Ref: T-4, Pages 38 and 39.**

Please respond to the following questions regarding the March 3, 2004 Pukele Substation Outage as it relates to the impact of an outage of the Pukele Substation.

a. Is HECO aware of any negative publicity or reports that created a "third world" image as a result of this outage? If yes, please provide copies of such documents.

b. Did HECO receive or review any claims in which customers or institutions reported loss of revenues or any other financial impacts? If yes, please provide copies of such claims.

c. Please summarize the negative economic, health or any other impacts of March 3, 2004 Pukele Substation Outage? Provide copies of all documentation and/or analysis to support the response.

CA-IR-17 **Ref: T-4 Pages 72 to 74.**

Regarding line re-conductoring, did HECO consider the use of HTLS conductor types that are not experimental and widely accepted, such as ACSS, which has similar cost to ACSR but allows higher operating temperatures (and ampacity)? Explain.

CA-IR-18 **Ref: T-4 Pages 71.**

Regarding "Options to Relieve the Koolau/Pukele Overload Situation," please respond to the following questions:

a. Did HECO consider rebuilding the 138 kV line from Halawa to Koolau as a double circuit line?

b. If yes, what are the results of that review pertaining to cost, feasibility, permitting, etc? Provide copies of all documentation and/or analysis conducted.

c. If no, explain why not.

CA-IR-19 **Ref: T-4, Pages 81 and 82 (DG at HELCO Substation Sites).**

Did HECO consider other generation options such as installing larger generators at HECO substations? Specifically, did HECO consider:

a. Installing a combustion turbine at a single site?

   1. If yes, please provide copies of all documentation and/or analysis performed together with an

explanation as to why this option is not being pursued.

2. If no, please explain why not.

b. Installing smaller combustion turbines at multiple substation sites?

1. If yes, please provide copies of all documentation and/or analysis performed together with an explanation as to why this option is not being pursued.

2. If no, please explain why not.

c. Installing larger (larger than 1 MW) diesel generators at multiple sites?

1. If yes, please provide copies of all documentation and/or analysis performed together with an explanation as to why this option is not being pursued.

2. If no, please explain why not.

CA-IR-20 **Ref: Exhibit 401.**

Please provide a listing of the normal and emergency ratings (in Amps) of each 138 kV transmission line on HECO's system. An Excel spreadsheet or other appropriate document is suitable for this listing.

CA-IR-21 **Ref: Exhibit 402.**

Please identify the names and locations of the 46 kV substations that are pertinent to the study area in the instant docket. Please provide the conductor size, normal and emergency ratings (in Amps) of 46 kV lines fed from Pukele, Koolau, Archer, School, Kewalo and Kamoku substations.

CA-IR-21 **Ref: Exhibit HECO 602, Pages 10 through 18.**

Regarding HRS Chapter 343 Requirements:

a. Who would be the accepting authority for the EIS if HECO were to pursue the Kamoku-Pukele 138 kV Underground Transmission Line Alignment?

b. Why did HECO not submit a new or supplemental EIS for the Kamoku-Pukele 138 kV Underground Transmission Line Alignment, either simultaneously with the Kamoku-Pukele 138 kV Transmission Line Project (via Waahila Ridge), or when major opposition was discovered from numerous parties, organizations and individuals?

c. What impact on the "Estimated Permitting & Engineering Schedule" (figure 2 on page 12, figure 3 on page 17 and figure 4 on page 18) would completing an EIS or supplemental EIS for the underground alternative have had on the project schedule? Provide copies of all documentation to support the response.

d. If the "Estimated Permitting and Engineering Schedule" could have been somehow shortened via filing a separate or supplemental EIS for the underground alignment of the Kamoku-Pukele 138 kV Transmission Line, would HECO find it more favorable to purse this option versus the project outlined in the instant docket? Explain.

CA-IR-23 **Ref: Exhibit HECO-602, Page 14, Third Bullet Point.**

Mr. Wong states "this particular 138 kV underground transmission line alternative does not appear to have as many contentious issues as the Waahila alternative." How much merit or weighting was this fact given when HECO chose to pursue the Waahila routing in spite of the fact that major opposition existed?

CA-IR-24 **Ref: T-9, Page 3 and Exhibit HECO-901 Pages 10 and 11.**

For each alternative, please provide a detailed breakdown of the:

a. Planning costs (previously spent and estimate of future expenditures). Also, break out the planning costs for the 138 kV planning and 46 kV planning when an alternative includes costs carried over from 138 kV project planning.

b. Permit and approval costs (previously spent and estimate of future expenditures). Break out 138 kV permit and approval costs and 46 kV permit approval costs when an alternative

includes costs carried over from 138 kV project permitting and approval activities.

c. Material and labor costs (as presented in Tables 1, 2, 3 and 4 of HECO-901 for transmission, sub-transmission and distribution improvement costs). Please provide the estimate of units such as circuit miles, etc. used to develop the costs for each alternative.

CA-IR-25 **Ref: T-9, Page 8.**

Please provide a copy of the "utility survey" results conducted by HECO pertaining to the life expectancy of 138 HPFF and 138 kV XLPE cable systems.

CA-IR-26 **Ref: T-9, Pages 9 and 10 (Operations and Maintenance Costs).**

Regarding O&M costs used to develop cost estimates for each alternative, please respond to the following questions:

a. Does HECO maintain records of O&M costs for underground 138 kV cable systems versus overhead 138 kV transmission lines? If so, please provide the figure for O&M of underground 138 kV transmission lines.

b. Does HECO maintain records of O&M costs for underground 46 kV cable systems versus overhead 46 kV sub-transmission lines? If so, please provide the figure for O&M of underground 46 kV transmission lines.

CA-IR-27 **Ref: T-9, Pages 10 and 11, HECO 901 Page 12.**

Regarding transmission losses, please respond to the following:

a. How does HECO anticipate treating the cost of the 46 kV improvements in the instant docket? Will the costs be treated as transmission components or distribution components? Explain why.

b. HECO-901, page 12 indicate that system losses decrease when selecting 46 kV alternatives. Please explain how losses decrease for the 46 kV options in comparison to the 138 kV options? Provide copies of all documentation and/or analysis conducted to support the response.

CA-IR-28 **HECO ST-4, Page 6 through 8.**

Regarding the Effectiveness of the Kamoku 46 kV Alternative - Expanded With the Proposed Changes, please answer the following questions:

a. Upon completion of Phase 1, how much Pukele load (percentage and MW) will be able to be backed up from other substations should both 138 kV lines feeding Pukele substation be out of service?

b. For the remaining Pukele load that cannot be backed up after completion of Phase 1, how would HECO define the "importance" of this load? Please identify some of the loads that would not be backed up after Phase 1 completion.

c. Upon completion of Phase 2, how much Pukele load (percentage and MW) will be able to be backed up from other substations should both 138 kV lines feeding Pukele substation be out of service?

d. If some Pukele load is not backed up during the period of Phase 1 completion and Phase 2 completion, why is HECO not installing both phases at this time to provide the same level of reliability to all of the Pukele loads?

CA-IR-29

Ref: Kamoku-Pukele Revised Final EIS, Pages ES-10, Table ES-1.

Does HECO agree that Alternatives 7 and 8 shown on table ES-1 have the least long-term, non-construction-related impacts of the 12 alternatives evaluated in the EIS? If no, explain why.

CA-IR-30

Ref: Kamoku-Pukele Revised Final EIS, Page 2-2, Last Paragraph.

What is the MW rating of the largest single generator (HECO or independently owned) and where is that unit located?

CA-IR-31

Ref: Kamoku-Pukele Revised Final EIS, Page 2-4, T-3 Pages 23 and 24.

HECO defines reliability consistently with NERC's definition of reliability. In addition, it is indicated that the NERC definition is for interconnected transmission systems and the "Oahu system must stand alone because it does not have interconnections to utilities on

other islands or in other states; therefore, it is prudent that Oahu standards be more conservative and provide more redundancy than NERC standards." Mr. Pollock seems to make a contradictory statement on pages 23 and 24 where he states that the "HECO criteria are actually less demanding than the NERC criteria."

a. Is it HECO's position that its transmission system planning criteria are more, less or equally demanding as NERC planning criteria? Explain.

b. Is it HECO's position that it is prudent to have planning criteria which are more stringent than NERC's criteria since the system is an island system? Explain.

CA-IR-32 **Ref: Kamoku-Pukele Revised Final EIS Figures 2-4 and 2-5.**

Please provide Figures 2-4 and 2-5 in electronic format. Formats that are preferred are jpeg, bmp, dxf, dxg or other suitable format that allows the figures to be utilized electronically.

CA-IR-33 **Ref: Kamoku-Pukele Revised Final EIS, Page 6-15.**

In light of the DLNR's refusal to issue a CDUP for the 138 kV line construction on the Waahila ridge, based on the PUC's *Decision and Order No. 10620,* reason one (for placing transmission lines underground), states "(1) there is a compelling reason (which outweighs the costs) to place the lines underground," does HECO now consider the opposition of the public, DLNR and other State

and local organizations to the project to be a compelling reason to construct a transmission line between Pukele and Kamoku utilizing underground technology? Explain.

CA-IR-34 **Ref: Docket 7273, 7526 and 7602 – General Planning Questions.**

Please respond to the general planning questions regarding the above referenced dockets and related documents.

a. Does HECO incorporate distribution related projects such as the Kakaako Master Plan (Docket 7273) into system wide plans such as the EOTP?

   1. If yes, please explain how and provide documentation and/or analysis to support the response.

   2. If no, please explain why not.

b. When HECO constructed the Kewalo and Kamoku substations, why were adequately sized 138/46 kV transformers not installed at that time to back up 46 kV circuits originating at Pukele Substation?

c. For substations that have two or more 138 kV transmission lines, is it common for HECO to have 46 kV circuits that can back up loads between substations?

   1. If yes, how many substations does HECO have that have two or more 138 kV transmission lines that can

be substantially backed up via 46 kV circuits from other substations?

2. If no, please explain why not.

CA-IR-35 **Ref: East Oahu Transmission Project 46 kV Phased Project - Draft Environmental Assessment.**

Please provide Figures 1-1, 2-1, 3-2 and 3-5 in electronic format. Formats that are preferred are jpeg, bmp, dxf, dxg or other suitable format that allows the figures to be utilized electronically.

CA-IR-36

a. How much did HECO spend on efforts made to pursue the construction of a 138kV transmission line over the Waahila Ridge?

b. How has the Company accounted for these costs (e.g., expensed, deferred, etc.)?

c. Identify the accounts in which the costs were/are recorded.

d. How much AFUDC was accrued on the project costs presented in response to part a of this information request? Provide an analysis which illustrates the amount of AFUDC accrued on the costs incurred over the period that the costs were incurred.

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing **DIVISION OF CONSUMER ADVOCACY'S INFORMATION REQUESTS** was duly served upon the following parties, by personal service, hand delivery, and/or U.S. mail, postage prepaid, and properly addressed pursuant to HAR § 6-61-21(d).

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DATED: Honolulu, Hawaii, August 25, 2004.

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